CLAIMS

What is claimed is:

1. A transdermal formulation for improving memory and cognitive function comprising:

a) an amount of huperzine sufficient to achieve a huperzine blood plasma level of from about 0.1 to about 30 ng/ml;

b) an inert carrier; and

c) a permeation enhancer selected from the group consisting of: fatty acids, fatty acid esters, fatty alcohols, fatty acid esters of lactic acid, fatty acid esters of glycolic acid, amides, amines, pyrrolidones, glycerol trimesters, terpenes, surfactants, complexing agents, biologics, their salts, and mixtures thereof.

2. A transdermal formulation as set forth in claim 1, wherein the blood plasma level to be achieved is from about 1 to about 15 ng/ml.

3. A transdermal formulation as set forth in claim 1, wherein the blood plasma level of from about 0.1 to about 30 ng/ml is to be achieved within about 0.5 to about 10 hours after administration of the formulation.

4. A transdermal formulation as set forth in claim 1, wherein a single dosage is sufficient to sustain the huperzine blood plasma level of from about 0.1 to 30 ng/ml for a duration of at least about 3 days.

5. A transdermal formulation as set forth in claim 1, wherein a single dosage is sufficient to sustain the huperzine blood plasma level of from about 0.1 to about 30 ng/ml for a duration at least about 7 days.

6. A transdermal formulation as set forth in claim 1, w wherein the huperzine is a member selected from the group consisting of huperzine A, huperzine B, huperzine X, and salts, analogs, derivatives, prodrugs, and mixtures thereof.

7. A transdermal formulation as set forth in claim 6, wherein the huperzine is huperzine A.

8. A transdermal formulation as set forth in claim 6, wherein the huperzine is huperzine B.

9. A transdermal formulation as set forth in claim 6, wherein the huperzine is huperzine X.

10. A transdermal formulation as set forth in claim 1, wherein the formulation is a topical formulation.

11. A transdermal formulation as set forth in claim 1, wherein the formulation is an adhesive matrix patch.

12. A transdermal formulation as set forth in claim 1, wherein the formulation is a liquid reservoir patch.

13. A transdermal formulation as set forth in claim 1, wherein said huperzine further comprises a huperzine hybrid compound.

14. A transdermal formulation as set forth in claim 13, wherein said huperzine hybrid compound is a huperzine-tacrine hybrid.

15. A transdermal formulation as set forth in claim 1, further comprising a hormone.

16. A transdermal formulation as set forth in claim 1, wherein the hormone is a member selected from the group consisting of estrogens, androgens, melatonin, seratonin, DHEA, phosphatidyl serine, and mixtures thereof.

17. A transdermal formulation as set forth in claim 16, wherein the hormone is estrogen.

18. A transdermal formulation as set forth in claim 1, further comprising a treatment agent selected from the group consisting of antipsychotics, anxiolytics, antidepressants, and mixtures thereof.

19. A transdermal formulation as set forth in claim 18, wherein the treatment agent is an antipsychotic.

20. A transdermal formulation as set forth in claim 18, wherein the treatment agent is an anxiolytic.

21. A transdermal formulation as set forth in claim 18, wherein the treatment agent is an antidepressant.

22. A transdermal formulation as set forth in claim 1, further including a positive health benefit imparting substance selected from the group consisting of: vitamins, minerals, amino acids, herbal and botanical extracts, anti-oxidants, and mixtures thereof.

23. A transdermal formulation as set forth in claim 22, wherein the positive health benefit imparting substance is a vitamin.

24. A transdermal formulation as set forth in claim 22, wherein the positive health benefit imparting substance is a mineral.

25. A transdermal formulation as set forth in claim 22, wherein the positive health benefit imparting substance is an amino acid.

26. A transdermal formulation as set forth in claim 22, wherein the positive health benefit imparting substance is an herbal extract.

27. A transdermal formulation as set forth in claim 22, wherein the positive health benefit imparting substance is a botanical extract.

28. A transdermal formulation as set forth in claim 22, wherein the positive health benefit imparting substance is an anti-oxidant.

29. A transdermal formulation for improving memory and cognitive function consisting essentially of:

an amount of huperzine sufficient to achieve a huperzine blood plasma level of from about 0.1 to about 30 ng/ml admixed with an inert carrier.

30. A method of improving memory and cognitive function comprising transdermally administering an amount of huperzine sufficient to achieve a huperzine blood plasma level of from about 0.1 to about 30 ng/ml.

31. A method as set forth in claim 30, wherein the transdermal administration of huperzine is sufficient to achieve a huperzine blood plasma level of from about 1 to about 15 ng/ml.

32. A method as set forth in claim 30, wherein the huperzine blood plasma level is achieved within about 0.5 to about 10 hours after initiation of the huperzine administration.

33. A method as set forth in claim 30, wherein the huperzine blood plasma level is sustained for a duration of at least 3 days from a single transdermal administration.

34. A method as set forth in claim 30, wherein the huperzine blood plasma level is sustained for a duration of at least 7 days from a single transdermal administration.

35. A method as set forth in claim 30, wherein the huperzine further comprises a huperzine hybrid compound.

36. A method as set forth in claim 35, wherein huperzine hybrid compound is a huperzine-tacrine hybrid.

37. A method as set forth in claim 30, further comprising a hormone.

38. A method as set forth in claim 37, wherein the hormone is a member selected from the group consisting of estrogens, androgens, melatonin, seratonin, DHEA, phosphatidyl serine, and mixtures thereof.

39. A method as set forth in claim 38, wherein the hormone is estrogen.

40. A method as set forth in claim 30, further comprising a treatment agent selected from the group consisting of antipsychotics, anxiolytics, antidepressants, and mixtures thereof.

41. A method as set forth in claim 40, wherein the treatment agent is an antipsychotic.

42. A method as set forth in claim 40, wherein the treatment agent is an anxiolytic.

43. A method as set forth in claim 40, wherein the treatment agent is an antidepressant.

44. A method as set forth in claim 30, further comprising co-administering a positive health benefit imparting substance selected from the group consisting of: vitamins, minerals, amino acids, herbal and botanical extracts, anti-oxidants, and mixtures thereof.

45. A method as set forth in claim 44, wherein the positive health benefit imparting substance is a vitamin.

46. A method as set forth in claim 44, wherein the positive health benefit imparting substance is a mineral.

47. A method as set forth in claim 44, wherein the positive health benefit imparting substance is an amino acid.

48. A method as set forth in claim 44, wherein the positive health benefit imparting substance is an herbal extract.

49. A method as set forth in claim 44, wherein the positive health benefit imparting substance is a botanical extract.

50. A method as set forth in claim 44, wherein the positive health benefit imparting substance is an anti-oxidant.

add a3